Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	"6548653".pn.	US-PGPUB; USPAT; EPO; DERWENT	OR	OFF	2005/05/13 13:00
L2	616	EPO with (SA or serum)	US-PGPUB; USPAT; EPO; DERWENT	OR	OFF	2005/05/13 13:01
L3	73	(EPO? with (SA or serum))"clm."	US-PGPUB; USPAT; EPO; DERWENT	OR	OFF	2005/05/13 13:02
L4	4	(EPO? with (SA or serum)).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	OFF	2005/05/13 13:02
L5	7	(EPO? and(SA or serum)).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	OFF	2005/05/13 13:02
L6	3	(EPO$ and(SA or serum)).clm. and EPOa and hsa	US-PGPUB; USPAT; EPO; DERWENT	OR	OFF	2005/05/13 13:03

-continued

1 5 10 15

Gly Gly Gly Gly
20

<210> SEQ ID NO 4
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<212> TYPE: PRT
<213> ORGANISM: Artificial Sequence
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<223> OTHER INFORMATION: Synthetically generated linker sequence

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1 5 10 15

Pro

What is claimed is:

1. An isolated nucleic acid comprising a nucleotide sequence which encodes an erythropoietin analog-human serum albumin (EPOa-hSA) fusion protein, wherein each of amino acid resdues 24, 38, 83 and 126 of human erythropoietin (EPO) has been altered such that it does not serve as a glycosylation site in the EPOa.

2. An expression vector or construct which comprises the nucleic acid of claim 1.

3. A cell which comprises the vector or construct of claim 2.

4. The vector of claim 2, further comprising a promoter.

5. The vector of claim 4, wherein the promoter is a promoter which directs expression in a tissue specific manner.

6. The vector of claim 4, wherein the promoter is a promoter which directs expression in mammary epithelial cells.

7. The nucleic acid of claim 1, wherein the encoded EPOa-hSA has the formula:

R1-L-R2; R2-L-R1; or R1-L-R2-L-R1,

wherein R1 is an erythropoietin analog amino acid sequence; L is a peptide linker and R2 is human serum albumin amino acid sequence.

8. The nucleic acid of claim 1, wherein at least one amino acid residue of the encoded EPOa-hSA which can serve as a glycosylation site in EPO has been deleted.

9. The nucleic acid of claim 1, wherein at least one amino acid residue of the encoded EPOa-hSA which can serve as a glycosylation site in EPO has been replaced with an amino acid which does not serve as a site for glycosylation.

10. The nucleic acid of claim 9, wherein the amino acid residue which is replaced is an N-linked glycosylation site of EPO.

11. The nucleic acid of claim 10, wherein the N-linked glycosylation site is altered by replacing an amino acid residue Asn with Gln.

12. The nucleic acid of claim 10, wherein amino acid residue 24 of human EPO has been replaced with Gln.

13. The nucleic acid of claim 10, wherein amino acid residue 38 of human EPO has been replaced with Gln.

14. The nucleic acid of claim 10, wherein amino acid residue 83 of human EPO has been replaced with Gln.

15. The nucleic acid of claim 9, wherein the amino acid residue which is replaced is an O-linked glycosylation site of EPO.

16. The nucleic acid of claim 15, wherein the O-linked glycosylation site is altered by replacing an amino acid residue Ser with Ala.

17. The nucleic acid of claim 15, wherein amino acid residue 126 of human EPO has been replaced with Ala.

18. The nucleic acid of claim 9, wherein amino acid residues 24 of human EPO is replaced with a Gln, amino acid residues 38 of human EPO is replaced with a Gln, amino acid residue 83 of human EPO is replaced with a Gln and amino acid residue 126 of human EPO have been replaced with an Ala.

19. An isolated nucleic acid comprising a nucleotide sequence which encodes an erythropoietin analog-human serum albumin (EPOa-hSA) fusion protein, wherein sequence in which a nucleic acid which comprises a nucleotide sequence encoding an EPOa is operably linked to a nucleic acid which comprises a nucleotide sequence encoding human serum albumin, wherein each of amino acid residues 24, 38, 83 and 126 of human erythropoietin (EPO) has been altered such that it does not serve as a glycosylation site in the EPOa.

20. The method of claim 19, wherein said cell is selected from a group consisting of a mammalian, yeast, plant, insect or a bacterial cell.

21. A method for making an EPOa-hSA fusion protein comprising:

supplying a cell of claim 3 which comprises a nucleic acid which encodes an EPOa-hSA fusion protein and

expressing said EPOa-hSA fusion protein from said nucleic acid, thereby making said EPOa-hSA fusion protein.

22. A method for making an EPOa-hSA fusion protein in a cultured cell comprising supplying a cell which includes a nucleic acid of claim 1, and expressing the EPOa-hSA fusion protein from the nucleic acid, thereby making the EPOa-hSA fusion protein.

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